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EXAMINER

SCHINDLER, TRENT L

ART UNIT

PAPER NUMBER

4137

MAIL DATE

DELIVERY MODE

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

10/526,491

Applicant(s)

SETSUDA ET AL.

Examiner

Trent Schindler

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 04 March 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
  - 2) ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date See Continuation Sheet
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_

Continuation of Attachment(s) 3). Information Disclosure Statement(s) (PTO/SB/08), Paper No(s)/Mail Date :3/4/05,1/18/06, 10/2/06, 5/30/07.

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## Detailed Action

### Drawings Objected

1. Figures 1-3 and 10a-10c should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### 2. Rejections under 35 USC §103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1, 2, 5, 6, 7, 14, and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Oshio et al. (Pub. No.: US 2002/0163108) in view of Iwasaki (Pub. No.: US 2003/0087179 A1).

5. Regarding claim 1, Oshio et al. discloses a laminate comprising:

- A removable support film (para. 48)
- An unbaked dielectric layer formed on said removable support film, said dielectric layer consisting of a glass paste material (para. 40)

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6. Oshio et al. further discloses burning out water-soluble material from the paste during baking (para. 6-7, para. 51), but does not disclose a separate burnable water-soluble or swellable intermediate layer.

7. However, Iwasaki discloses an intermediate layer made of water-soluble materials (para. 39, 40) that the applicant considers burnable, e.g. polyvinyl alcohol or its derivatives (para. 58) on the removable film support.

8. It would have been obvious to person or ordinary skill in the art at the time the invention was made to use the teaching of Iwasaki in the device of Oshio et al, since such a layer improves adhesion (para. 38)

9. Regarding claim 2, Oshio et al. discloses a laminate comprising:

- A removable support film (para. 48)
- A photosensitive unbaked layer formed on said removable support film (para 3)

10. Oshio et al. further discloses burning out water soluble material from the paste during baking (para. 6-7, para. 51), but does not disclose a separate burnable water-soluble or swellable intermediate layer on the photosensitive unbaked layer.

11. However, Iwasaki discloses an intermediate layer made of water-soluble materials (para. 39, 40) that the applicant considers burnable, e.g. polyvinyl alcohol or its derivatives (para. 58) on the removable film support.

12. It would have been obvious to person or ordinary skill in the art at the time the invention was made to use the teaching of Iwasaki in the device of Oshio et al, since such a layer would improve adhesion to subsequent layers that would be laid on the applied laminate.

13. Regarding claim 5, Oshio as applied to claim 2 discloses the device of claim 2, and further discloses the photosensitive glass paste material being developable by the use of water (para. 6)

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14. Regarding claim 6, Oshio et al. as applied to claim 1 discloses the device of claim 1, and further discloses (through Iwasaki) the burnable intermediate layer comprising a polyvinyl alcohol, polyvinyl alcohol derivative; or a water-soluble cellulose, or mixtures thereof (para. 39, 40)

15. Regarding claim 7, Oshio et al. as applied to claim 1 discloses the device of claim 1, but does not disclose that the burnable intermediate layer should have a thickness of 5 microns or less.

16. However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to require that the burnable intermediate layer have a thickness of 5 microns or less, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. In re Aller 105 USPQ 233 (CCPA 1955).

17. Regarding claim 14, Oshio et al. as applied to claim 2 discloses the device of claim 2, and further discloses (through Iwasaki) the burnable intermediate layer comprising a polyvinyl alcohol, polyvinyl alcohol derivative, or a water-soluble cellulose, or mixtures thereof (para. 39, 40)

18. Regarding claim 15, Oshio et al. as applied to claim 2 discloses the device of claim 2, but does not disclose that the burnable intermediate layer should have a thickness of 5 microns or less.

19. However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to require that the burnable intermediate layer have a thickness of 5 microns or less, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. In re Aller 105 USPQ 233 (CCPA 1955).

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20. Claims 3, 13, 16, 17, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Obiya et al. (Patent No.: 5,919,569) in view of Oshio et al. (Pub. No.: US 2002/0163108), further in view of Iwasaki (Pub. No.: US 2003/0087179 A1).

21. Regarding claim 3, Obiya et al. discloses a laminate comprising:

- A removable support film (Fig 1)
- A photosensitive unbaked layer formed on said removable support film (Fig. 1)

but does not disclose the unbaked dielectric layer.

22. However, Iwasaki discloses an unbaked dielectric layer formed on a burnable intermediate layer, said dielectric layer consisting of a glass paste material.

23. It would have been obvious to a person of ordinary skill at the time the invention was made to use the teaching of Oshio et al. (in view of Iwasaki) in the device of Obiya et al., since it has been held that forming in one piece an article which has formerly been formed in two pieces and put together involves only routine skill in the art. *Howard v. Detroit Stove Works*, 150 U.S. 164 (1893).

24. Regarding claim 13, Obiya et al. as applied to claim 3 discloses the device of claim 3, and further discloses (through Oshio, para. 6) the photosensitive glass paste material being developable by the use of water.

25. Regarding claim 16, Obiya as applied to claim 3 discloses the device of claim 3, and further discloses a removable protection film on the opposite side of the laminate from the support film (Fig. 1).

26. Regarding claim 17, Obiya et al. as applied to claim 3 discloses the device of claim 3, and further discloses (through Iwasaki) the burnable intermediate layer comprising a polyvinyl alcohol, polyvinyl alcohol derivative, or a water-soluble cellulose, or mixtures thereof (para. 39, 40)

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27. Regarding claim 18, Obiya et al. as applied to claim 3 discloses the device of claim 3, but does not disclose that the burnable intermediate layer should have a thickness of 5 microns or less.

28. However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to require that the burnable intermediate layer have a thickness of 5 microns or less, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. In re Aller 105 USPQ 233 (CCPA 1955).

29. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Oshio (Pub. No.: US 2002/0163108) in view of Iwasaki (Pub. No.: US 2003/0087179 A1), and further in view of Obiya et al. (Patent No.: 5,919,569).

30. Oshio in view of Iwasaki discloses the device of claim 1, but does not disclose the removable protection film.

31. However, Obiya et al. discloses a removable protection film on the opposite side of the laminate from the support film (Fig. 1).

32. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to use the teaching of Obiya et al. in the device of Oshio et al., since a protection film would prevent damage to the various layers of the laminate.

33. Claims 8 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Oshio et al. (Pub. No.: US 2002/0163108) in view of Iwasaki (Pub. No.: US 2003/0087179 A1).

34. Regarding claim 8, Oshio et al. discloses a method comprising the steps of (para. 5):

- forming on the surface of a substrate (para. 59) an unbaked photosensitive (para.3) dielectric (para. 62) layer consisting of a glass paste material (para. 40);



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- irradiating said spacer material layer with a patterning light, and developing said spacer material layer, to constitute a patterned spacer material layer (para. 59);
- baking said patterned spacer material layer, forming said spacer layer on said glass substrate (para. 60).

And further discloses burning out water-soluble material from the paste during baking (para. 6-7, para. 51), but does not disclose forming or baking a separate burnable water-soluble or water-swellaable intermediate, or a separate unbaked photosensitive spacer layer.

35. However, Iwasaki discloses an intermediate layer made of water-soluble materials (para. 39-40) that the applicant considers burnable, e.g. polyvinyl alcohol or its derivatives, and a separate photosensitive unbaked layer (para. 77), which if used in the device of Oshio et al. could be in the specified order, and would be baked simultaneously, burning up the burnable layer.

36. It would have been obvious to person or ordinary skill in the art at the time the invention was made to use the teaching of Iwasaki in the device of Oshio et al., since it has been held that constructing a formerly integral structure in various elements involves only routine skill in the art. *Nevin v. Erlichman*, 168 USPQ 177, 179.

37. Regarding claim 9, Oshio et al. in view of Iwasaki discloses the method of claim 8, and further discloses:

- Forming on a removable support film (para. 2) a burnable intermediate layer which is water soluble or water swellaable (through Iwasaki, para. 39-40), and an unbaked dielectric layer (para. 62) consisting of a glass paste material (para. 40) to prepare a laminate
- Attaching said laminate on a glass substrate so that the unbaked dielectric layer faces the surface of the glass substrate, said surface having electrodes (para. 48)
- Removing the removable support film from the burnable intermediate layer, to uncover said layer

but does not disclose forming a photosensitive unbaked spacer material layer on the burnable layer.

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38. However, Iwasaki further discloses a step in a process whereby a photosensitive layer is left on top of the layers of a similarly-prepared substrate (step d of Fig. 2)

39. It would have been obvious to person of ordinary skill in the art at the time the invention was made to use the teaching of Iwasaki in the method of Oshio et al., since this would leave the photosensitive layer in a desirable location for subsequent patterning.

40. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Oshio et al. (Pub. No.: US 2002/0163108) in view of Iwasaki (Pub. No.: US 2003/0087179 A1), and further in view of Hibino et al. (Pub No.: US 2003/0071572 A1).

41. Oshio et al. as applied to claim 8 discloses the method of claim 8, and further discloses forming on a removable support film (para. 2) a photosensitive unbaked spacer material layer (para 5), and burnable intermediate layer which is water soluble or water swellable (through Iwasaki, para. 39-40) to prepare a laminate, and attaching this laminate to a glass substrate having electrodes (para. 48), but does not disclose forming an unbaked dielectric layer on the glass substrate first.

42. However, Hibino et al. discloses forming an unbaked dielectric layer consisting of a glass paste material on the surface of a glass substrate, said surface having electrodes (Fig. 3). This location implies that the burnable intermediate layer would face the dielectric layer if the laminate were attached.

43. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to use the teaching of Hibino et al. in the method of Oshio et al, since this method would help planarize the electrode-containing substrate, allowing a void-free bond to the laminate.

44. Claims 11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Oshio et al. (Pub. No.: US 2002/0163108) in view of Iwasaki (Pub. No.: US 2003/0087179 A1), and further in view of Obiya et al. (Patent No.: 5,919,569).

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45. Regarding claim 11, Oshio in view of Iwasaki discloses the method of claim 8, and Oshio in view of Obiya discloses the device of claim 3. The existence of the laminate of claim 3 implies the step of forming it.

46. Oshio further discloses attaching said laminate on said glass substrate. Given the laminate of claim 3, the orientation of the attached layers would naturally be such that the dielectric layer would face the surface of the electrode-containing glass substrate.

47. Regarding claim 12, Oshio in view of Iwasaki discloses the device of claim 2, but does not disclose the removable protection film.

48. However, Obiya et al. discloses a removable protection film on the opposite side of the laminate from the support film (Fig. 1).

49. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to use the teaching of Obiya et al. in the device of Oshio et al., since a protection film would prevent damage to the various layers of the laminate.

## Conclusion

50. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Oshio et al. (Pub. No.: US 2002/0164542) pertains to the composition of a dielectric, photosensitive paste and its use in a film. Masuko pertains to the transfer of patterned layers to a substrate.

51. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Trent Schindler whose telephone number is (571) 270-3321. The examiner can normally be reached on Monday through Thursday, 7:30 am to 5:00 pm ET.

52. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Akm Ullah can be reached on (571) 272-2361. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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53. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



AKM ULLAH  
SUPERVISORY PATENT EXAMINER